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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,399	09/24/2001	Hiroshi Hashimoto	011225	5652
23850	7590	11/19/2003	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			WEISS, HOWARD	
1725 K STREET, NW			ART UNIT	
SUITE 1000			PAPER NUMBER	
WASHINGTON, DC 20006			2814	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/960,399	Applicant(s) HASHIMOTO ET AL.	
	Examiner Howard Weiss	Art Unit 2814	

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) 1-15 ~~is~~ are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16 and 18 ~~is~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-16 and 18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 01 October 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7</u> . | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 011225
Filing Date: 9/24/01
Continuing Data: RCE established 3/5/03
Claimed Foreign Priority Date: 6/21/01 (JPX)
Applicant(s): Hashimoto et al. (Takahashi)

Examiner: Howard Weiss

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 10/1/02 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Information Disclosure Statement

2. The IDS filed 10/1/02 was attached to Paper #9 mailed 12/11/02. A copy of that IDS is attached to this Office Action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order

for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Initially, and with respect to Claims 16 and 18, note that a "product by process" claim is directed to the product per se, no matter how actually made. See *In re Thorpe et al.*, 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).

Note that Applicant has burden of proof in such cases as the above case law makes clear.

5. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted Prior Art Figures 8 and Gwen et al. (U.S. Patent No. 5,472,892).

Admitted Prior Art Figures 8 shows most aspects of the instant invention including:

- a substrate **11** with a non-volatile memory **A** including a floating gate **13** with a control gate **16** formed on said floating gate via an insulation film **14**
- first to third MOS transistors **B**, **C**, **D** with gates insulation films **12B**, **12C**, **12D** of increasing thicknesses and gate electrodes **16B**, **16C**, **16D** of substantially identical height.

Admitted Prior Art Figures 8 do not show the control and MOS gates constructed of two silicon films. Gwen et al. teach (e.g. Figure 3I) to form control gate (in cell array region) and MOS gates (in peripheral circuit region) of two silicon films **206**, **208**

stacked upon each other to decrease the number of processing steps (Column 4 Lines 45 to 50). It would have been obvious to a person of ordinary skill in the art at the time of invention to form control and MOS gates of two silicon films stacked upon each other as taught by Gwen et al. in the device of the Admitted Prior Art Figures 8 to decrease the number of processing steps.

As to the grounds of rejection under "product by process", how the gate electrodes are formed (either from the same silicon films or from different films) or in what order each layer is deposited relates to intermediate process steps and does not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims.

Response to Arguments

6. The Applicants' arguments filed 7/31/03 have been fully considered but they are not persuasive. Applicants arguments are similar to previous arguments and the Examiner's answers in the last office action, Paper #12, are still pertinent and considered repeated herein. Additionally, the designation of the silicon films with numbers (i.e. one, two and three) concerns how the films are deposited during manufacture of the device. To put it more distinctly, the final device has the control gate of the memory cell transistor and the gates of the peripheral transistors with two layers of silicon films as shown by Gwen et al.

In reference to the gate thickness, Gwen et al. clearly show that the gate oxide of the memory cell **203** (Figure 3A) is different (i.e. thinner) than the gate oxide of the peripheral transistor **202** (Figure 3B and Column 3 Line 60 to Column 4 Line 2). Therefore, Gwen et al. structure leaves room for transistors of different gate oxide thicknesses. That the cell and peripheral transistors have the same structure will insure that their electrode will have substantially the same height. In view of these reasons and those set forth in the present office action, the rejections of the stated claims stand.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications. The official TC2800 Before-Final, **(703) 872-9318**, and After-Final, **(703) 872-9319**, Fax numbers will provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.

Art Unit: 2814

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/321,392	thru 11/4/03
Other Documentation: none	
Electronic Database(s): EAST	thru 11/4/03

HW/hw
4 November 2003

Howard Weiss
Examiner
Art Unit 2814



SUPERVISORY/PRINCIPAL EXAMINER
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